

REMARKS

Reconsideration of the subject application as amended herein is requested.

Presently, Claims 1, 3, and 4-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda (US Patent Application Publication No. 2003/0036365, hereafter "Kuroda") in view of Rinaldi et al. (US Patent Application Publication No. 2003/0057430, hereafter "Rinaldi"). Claims 2, 10-14, 23, 25/23, 26/23 and 27/23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda in view of Rinaldi and further in view of Yamada et al. (US Patent Application Publication No. 2001/0050717, hereafter "Yamada"). Claims 15, 17, 18 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda in view of Rinaldi and further in view of Cibulsky et al. (US Patent No. 5,378,306, hereafter "Cibulsky"). Claim 16 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda in view of Rinaldi and in view of Cibulsky and further in view of Yamada. Claims 20 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda in view of Yamada. Claim 22 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda in view of Yamada and further in view of Cibulsky. Claims 24, 25/24, 26/24, 27/24, 28, 29 and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda in view of Rinaldi and further in view of Yamada and further in view of Braithwaite (US Patent No. 6,540,392, hereafter "Braithwaite").

The Applicants respectfully traverse these rejections.

Briefly as defined, for example, in claim 1, the present invention pertains to a camera module for mobile communication devices. The module comprises an image capture device unit for focusing an image of a subject, a flash for selectively illuminating the subject using light from a LED (light emitting diode) unit, a FPC (flexible printed circuit) electrically connected between the image capture device unit and the LED unit, and a connector unit for applying an electric signal to the image capture device unit. As discussed in the specification in conjunction with Fig. 3, a disadvantage of prior art camera modules is that in some instances camera modules must be incorporated into a folding device, and in such a configuration, the connections for the module are difficult to dispose in a small hinge. Moreover, a picture under low light conditions can be taken only by aligning a terminal of the mobile unit with the hinge 31 holding the camera and both are pointed toward the subject. Therefore, an important feature of the present invention is that the subject camera module includes a flash generating LED, an image capture device are formed separately of a motherboard of a mobile communication terminal (as described in par. 58 of the specification). As a result, the LED unit and the image capture device can be separately rotated independently of the movement of said motherboard. Moreover, these units can either formed directly on the flexible PC. or can be attached to a rigid PC board and the connected to each other by an FPC. In either case, because they are separate and distinct from the motherboard of the mobile communication unit, they can be made smaller and therefore require less space. These features are clearly recited in the independent claims.

The examiner takes the position that (except for the LED) the elements of the application are found in the Kuroda. The Applicants respectfully traverse this rejection. Kuroda discloses a mobile phone with two camera units (6, 10), a motherboard 14 and a flash unit 12. While, at least one camera unit is mounted on a PC board 13 and is connected by a flexible cable 16 to the motherboard 14, the Applicants could not find anywhere in this reference anything that would indicate that the flash 12 is mounted on the motherboard 14. Moreover, even if the flash 13 were to be mounted on the motherboard 14, the subject invention still provides a structure that is completely different from and patentably distinguishable over Kuroda. More specifically, as discussed above, the present invention pertains to a camera module that is separate from the motherboard of a mobile telephone and communicates therewith (for example to obtain power, and or to receive trigger signals) via a separate connector. Contrary to the position of the examiner, Kuroda does not teach a mobile phone with a motherboard and a separate camera module. Instead, at best, Kuroda discloses a mobile phone with a motherboard having a flash and a separate camera unit.

The remaining references were cited for disclosing other elements but do not recite a separate camera module as defined above, and, accordingly, these references are not relevant. For example, Rinaldi is cited for disclosing a device with an LED. Yamada is cited for teaching a device with a camera unit, a lens, an image pick-up opening, an iris filter. Cibulski is cited as teaching a flexible circuit board. Braithwaite is cited for disclosing an optical fiber.

In summary, it is respectfully submitted that the subject application is patentably distinguishable because the prior art fails to teach a camera module with a camera unit, a flash unit, a flexible PC interconnecting the two the camera module being separate from the mother board of the mobile phone. It is respectfully submitted that the subject application is now in condition for allowance.

Respectfully submitted,

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